grows out of the seed carrying the plumule and hypocotyl with it. The length of the tube varies in different species, and in *M. horridus* the elongated tube bears "absorbent hairs." In emerging from the tube the hypocotyl breaks through at the base, and later the plumule pierces the side of the tube. Eventually a hypocotyledonary tuber is formed, which may become very large. In *M. horridus* the interesting discovery was made that in connection with the growth of this tuber the cotyledonary tube splits into 6 separate parts, each of which contains a vascular strand.—J. M. C.

An automatic transpiration scale.—The extensive work of BRIGGS and SHANTZ[22] upon the water relations of plants in arid and semi-arid regions, and more particularly their water requirement measurements, has necessitated the construction and use of an automatic scale of 200 kg. capacity, sensitive to 5 gm., in order to measure the transpiration of plants freely exposed to wind and weather. Such a scale is described in a recent publication.[23] In it steel balls are used as weights, and continuous records for periods of several weeks are obtained. The article also contains a review of other forms of transpiration balances, both of the step-by-step type, which includes the scale here described, and of the continuous record type.—GEO. D. FULLER.

Field rot of potato tubers.—PRATT[24] points out some interesting facts that he discovered in his studies of the potato rot situation in Idaho. "Stem end rot," "field rot," or "black rot" of potatoes of the round type, such as Rurals and Pearls, and jelly end rot of tubers of the Burbank group are induced by *Fusarium radicicola*. The organism is active at temperatures above 50° C. and can therefore be controlled in storage. Field control of the black rot situation is difficult. Seed pieces afflicted with black rot bring about infection of the following potato crop, and, interestingly enough, virgin soils produce heavier infection than lands that have been put to crops.—G. K. K. LINK.

Recent work in embryology.—SOUÈGES,[25] in continuing his embryological studies, has published an account of the Cruciferae, which traverses the classic work of HANSTEIN and FAMINTZIN. The figures are chiefly those of *Lepidium sativum*, although other species of *Lepidium* (*L. campestre* and *L. Draba*) and *Cochlearia officinalis* are included.

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[22] BOT. GAZ. **56**:514–515. 1913.

[23] BRIGGS, L. J., and SHANTZ, H. L., An automatic transpiration scale of large capacity for use with freely exposed plants. Jour. Agric. Research **5**:117–132. *pls. 9–11. figs. 18.* 1915.

[24] PRATT, O. A., A western field rot of the Irish potato tuber caused by *Fusarium radicicola*. Jour. Agric. Research, Dept. Agric. **6**:297–309. *pls. 34–37.* 1916.

[25] SOUÈGES, M. R., Développement de l'embryon chez les Crucifères. Ann. Sci. Nat. Bot. **19**:311–339. *pls. 11–14. figs. 76.* 1914.

CARANO has published the results of the investigation of the development of the embryo in Asteraceae,[26] *Senecio vulgaris*,[27] and *Poinsettia pulcherrima*.[28]—J. M. C.

Water absorption by epiphytes.—LIESKE,[29] studying certain epiphytes (*Epidendrum* and *Tillandsia*) in their natural habitats about Rio de Janiero, concludes that the velamen of the former and the scales of the latter do not condense physiologically significant amounts of water from the air. The water needs are supplied by rain, dew, and mist. The scales of *Tillandsia* seem important in trapping salts as dust from the air, which are later dissolved and absorbed.—WILLIAM CROCKER.

Toxicity of lithium salts.—FERKING[30] obtains some interesting results upon the toxicity of lithium salts. He finds that lithium salts, like magnesium salts, are highly toxic only to calcium-requiring plants and not injurious to the lower algae (*Chlorella* and *Scenedesmus*) and fungi (*Penicillium glaucum*) that do not require calcium. While calcium salts can fully antagonize the injurious effects of magnesium salts, they only reduce the toxicity of lithium salts.—WILLIAM CROCKER.

Morphology of Pittosporum.—BREMER[31] has investigated the ovule and embryo sac of two species of *Pittosporum*, and reports that in both cases the nucellus degenerates and has disappeared when the embryo sac is mature. In *P. ramiflorum* the third megaspore of the linear tetrad develops the embryo sac; and in *P. timorense* the tetrad is bilateral instead of linear.—J. M. C.

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[26] SOUÈGES, Ricerche sull'embriogenesi delle Asteracee. Annali di Botanica **13**: 251–301. *pls. 11–16.* 1915.

[27] CARANO, E., Sull'embriologia di *Senecio vulgaris* L. Rend. Roy. Accad. Lincei **24**:1244–1248. *figs. 10.* 1915.

[28] ———, Sull'embriologia di *Poinsettia pulcherrima* R. Grah. Annali di Botanica **13**:343–350. *pl. 17.* 1915.

[29] LIESKE, R., Beiträge zur Kenntnis der Ernährungsphysiologie extrem atmosphärischer Epiphyten. Jahrb. Wiss. Bot. **56**:112–122. 1915. PFEFFER's Festschrift.

[30] FERKING, H., Über die Giftwirkung Lithiumsalze auf Pflanzen. Flora **108**: 449–453. 1915.

[31] BREMER, G., Reliquiae Treubianae II. The development of the ovule and embryo sac of *Pittosporum ramiflorum* Zoll. and *Pittosporum timerense* Blume. Ann. Jard. Bot. Buitenzorg II. **14**:161–164. *pls. 23–26.* 1915.